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BARTHOLOMEW'S ATLAS OF ZOOGEOGRAPHY: A REVIEW*

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The authors of this atlas state in the preface that it is not a revision of any older work but is the result of independent investigation of original sources. This statement is certainly true. It is the most elaborate treatise of the kind which has ever been published, and so is vastly superior to all of its predecessors. Such an extensive undertaking can no longer be the work of one man, and the present co-operative plan is evidence of the advantage of this method.

Geography, to the authors, is clearly the science of distribution, and the description and mapping of the ranges of the different families, genera, etc., is their idea of zoogeography. The general position of this work might be described as a revised atlas to accompany Wallace's "Geographical Distribution of Animals," 1876. But the geographic standards and ideas, in some parts of the world at least, have changed considerably since that date, and the *explanatory* aspect has been coming more and more into the foreground. This atlas unfortunately shows but little trace of this influence, although the general processes of dispersal are discussed in the text. There are maps showing ocean currents and the distribution of various types of vegetation, and diagrams are given of the influence of the land relief and depth of the sea upon the distribution of animals, as well as two maps to show the routes of migrating birds, yet the influence of the salinity, density, and temperature of the sea water and the climate of the lands are neglected or ignored, and a series of paleogeographic maps is lacking. That paleogeographic maps should be omitted at this date when they throw so much light upon zoogeographic relations and when we have such valuable ones is a very serious fault. The vegetational map is a valuable feature in such a volume. We, therefore, miss in this atlas the adequate recognition of the influence of certain factors which control in part the present fauna, as well as the recognition, in the form of maps, of the former conditions whose influence has persisted until now. It is thus the ecological aspect, the response of the animal to the conditions of its existence, which is not adequately developed in this atlas. To this degree it is not representative of the status of the science to-day, for it covers only a part of the field—the distributional aspect.

If we consider now the atlas as a study in descriptive distribution its strong features are evident. The volume consists of two sections, text and maps. The text is divided into four parts. The first is a very concise outline of the salient principles of distribution. The second is a general historical account of the various efforts that have been made to divide the world into zoogeographic regions: with slight revision Wallace's is considered the most natural and is made the basis of this work. These regions, the Palearctic, the Ethiopian, the Oriental, the Australian, the Neotropical, and the Nearctic, are taken up *seriatim,* and each is discussed with regard to its extent, subdivisions, physical features, zoological characteristics and affinities, each account concluding with a statistical summary or census of the number of terrestrial families of vertebrates found in the region under consideration, and an indication of the families which are restricted or peculiar to it. As an appendix to this there are short chapters on insular and marine faunas. The total number of families of terrestrial vertebrates recognized is: mammals, 82; birds, 148; reptiles, 52; amphibians, 24; in all, 306.

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* Atlas of Zoogeography (Bartholomew's Physical Atlas: Vol. V). Prepared by J. G. Bartholomew, W. Eagle Clarke and Percy H. Grimshaw. 67 pp. text, 36 plates, index. John Bartholomew & Co., Edinburgh, 1911. £2, 12s, 6d. 18 x 12.

The third part consists of the descriptive text which accompanies the plates. Both text and plates are devoted to the different families, genera, etc., beginning with the higher apes and descending the zoological scale. This includes all the families of mammals, birds, reptiles, amphibians, most of the families of fishes, and a selection of families and genera among molluscs and insects. A large number of valuable and interesting facts are thus assembled, representing a vast amount of work on the part of the authors. On account of the fact that the boundaries of certain families and genera coincide with similar ecological differences it is possible to gain from the maps many valuable ecological relations. The authors have shown good judgment in not attempting to put too much on a single map and have maintained simplicity by multiplying the number. A single plate may have from six to ten maps.

The fourth part is a classified bibliography of about 1,000 titles. In addition to general works each region is furnished with lists of references on vertebrates and a selected list on the molluscs and insects which are mapped. There is a special list given on the Antarctic and sub-Antarctic.

The plates of maps are thirty-six in number, measuring 15 x 19 inches. They are beautifully colored and of the same superior quality as in the "Meteorological Atlas" of the same series. The maps number over 200. The first plate contains a map of the zoogeographic regions after Wallace, and two smaller maps, one showing the prevailing vegetation and ocean currents, the other the bathy-orographical configuration of the world. The second plate is devoted to the boundaries of the zoogeographic regions proposed by the Sclaters, Heilprin, and Lydekker, and to the marine areas of Ortmann and Sclater. The next series of twenty-four plates is devoted to the vertebrates, including all of the families of mammals, birds, reptiles, and most of the fishes. Two plates are devoted to molluscs and seven to insects. The last plate consists of a diagram to show vertical and latitudinal distribution upon land and in the sea.

The volume is concluded with a good index to the common and scientific names and thus permits ready access to the maps.

When we consider the volume as a whole, and from the standpoint from which it was prepared, nothing but praise can be given. In its particular field it is the most important work of the kind ever published, and is essential to both the geographer and the zoologist.

From the vantage ground acquired by these authors during the preparation of this atlas they call attention to Siberia, which is much in need of thorough zoogeographic exploration. This is a fact which deserves emphasis. A few years ago Stejneger and Miller called the attention of the Carnegie Institution to the desirability of the exploration of Eastern Asia and showed that it was zoogeographically the most important large area awaiting thorough exploration. Thus the authors have not only shown us what has been done, but also what remains to be done.

GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

THE DECEMBER MEETING OF THE SOCIETY. A regular meeting of the Society was held at the Engineering Societies' Building, No. 29 West 39th Street, on Tuesday, December 17, 1912, at 8:30 P. M. The Chair was occupied by Vice-President Greenough.

The following persons, recommended by the Council, were elected to fellowship:

Norman L. de Courcey-Burnett,
Max Ferrand,
Edward E. Free,
Robert A. Gardiner,
Sidney Harris,
Geo. B. Herzig,
Jas. S. Higbie,
Wm. S. Long,
William du Pont,
John H. Williams.

The Chairman then introduced Miss Marion Cock, who addressed the Society on "Greece." The lecture was illustrated by numerous lantern slides. On adjournment, the audience had an opportunity to meet Miss Cock in the lower hall.

NORTH AMERICA

PHYTOGEOGRAPHICAL EXCURSION IN THE UNITED STATES. A preliminary announcement has been issued by Prof. Henry C. Cowles of the University of Chicago and Prof. Frederic E. Clements of the University of Minnesota with regard to an international phytogeographical excursion to be held in the United States in August and September, 1913. The excursion is to begin at Chicago about August 1 and close at New York about October 5. Opportunity will be given to participate in local excursions about New York, Washington and Philadelphia. It is hoped that the entire necessary expense for transportation, lodging and subsistence from New York and back to New York will not exceed the sum of $400.

The following features of phytogeographical interest will be studied: near Chicago, examples of the deciduous forests of the eastern United States, the Lake Michigan sand dunes, tamarack (*Larix*) swamps, edaphic prairies and aquatic vegetation; in Nebraska, climatic prairies and salt basins near Lincoln and sand hills near Halsey; the vegetation of the foothills, mesas and mountain parks and of the sub-alpine and alpine region of the Rocky Mountains of Colorado as illustrated in Estes Park, at Colorado Springs and Minnehaha and on Pike's Peak; alkali vegetation, sagebrush (*Artemisia*) desert and irrigated lands near Salt Lake City; mesophytic conifer forests, bogs, salt marshes and marine algae near Seattle, Wash.; sub-alpine and alpine vegetation on Mt. Rainier; the groves of Big Trees (*Sequoia gigantea*), the forests of redwood (*Sequoia sempervirens*), the groves of Monterey cypress (*Cupressus macrocarpa*) and the chaparral of California; the invasion of new territory by desert vegetation near Mecca, Cal.; lowland and highland desert and mountains with transition from desert to conifer forests near Tuscon, Ariz. The itinerary includes the Great Salt Lake, the Yosemite National Park and the Salton Sea. Among institutions to be visited are the University of Chicago, the University of Nebraska, Leland Stanford University, the Carnegie Laboratory at Carmel, Cal., and the Carnegie Desert Laboratory near Tucson, Ariz.